DR-92

EFFECT OF SINTERING TEMPERATURE ON THE MAGNETODIELECTRIC PERFORMANCE OF NICKEL FERRITE

T. Ramesh[1,a)], V. Madhavi[2,b)], P. Neelima[3,c)], K. Nagendra Kumar[4,d)], N. Bakthavatchala Reddy[5,e)], Grigory V Zyryanov[5,6,f)]

[1]*Department of Physics, BVRIT Hyderabad College of Engineering for Women, Hyderabad, India*

[2]*Department of Chemistry, BVRIT Hyderabad College of Engineering for Women, Hyderabad, India*

[3]*Department of Physics, St. Peter's Engineering College, Hyderabad, India*

[4]*Department of Mechanical Engineering, BVRIT Hyderabad College of Engineering for Women, Hyderabad, India*

[5]*Ural Federal University, Chemical Engineering Institute, Yekaterinburg, 620002, Russian Federation.*

[6]*I. Ya. Postovskiy Institute of Organic Synthesis, Ural Division of the Russian Academy of Sciences, 22 S. Kovalevskoy Street, 620219 Yekaterinburg, Russian Federation.*

[a)]*Corresponding author : rameshouphysics@gmail.com*

[b)]*madhuchem9@gmail.com*

[c)]*sneelima.2710@gmail.com*

[d)]*nagendrakumar.k@bvrithyderabad.edu.in*

[e)]*drbvreddyn@gmail.com*

[f)]*gvzyryanov@gmail.com*

Abstract. Nickel ferrite ($NiFe_2O_4$) nanopowder has been synthesized by a sol-gel auto-combustion process and further sintered at various sintering temperatures. The sintered samples were characterized by XRD, SEM and VSM. Enhancement of apparent density of the sample has been observed with the increase in sintering temperature and has a great influence on the magnetic and dielectric properties of $NiFe_2O_4$. The SEM results reveal that the grain size increases with increasing sintering temperature. The electrical resistivity decreases and the dielectric constant increases with increasing sintering temperature has been observed. The magnetic studies shown that the ferrimagnetic behaviour increases with sintering temperature. These results suggest that sintering temperature has a prominent effect on the magnetodielectric properties.